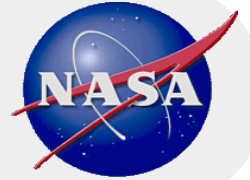


NASA Measurements Summary for the 34th IADC Working Group 1

Joe Hamilton



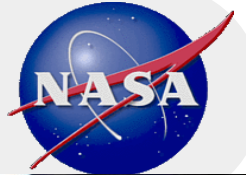
NASA Radar Measurements since April 2015

- **The Haystack Auxiliary (HAX) radar has been unavailable for debris observations**
- **The HUSIR radar collected 488 Hours**
 - 347 Hours at 75° elevation, 90° azimuth
 - 54 Hours at 10° elevation, 180° azimuth
 - 87 Hours at 20° elevation, 180° azimuth
- **The Goldstone radar collected 42 hours of data.**
- **The IADC WG1 24 hour campaign was conducted from 1200 UTC 8 December 2015 to 1200 UTC 8 December 2015**
 - HUSIR, Goldstone, and Cobra Dane participated for NASA
 - HUSIR and Goldstone were at 20° elevation, 180° azimuth
 - Data is not yet processed.



Aeronautics and Space Administration

Meter Class Autonomous Telescope (MCAT)



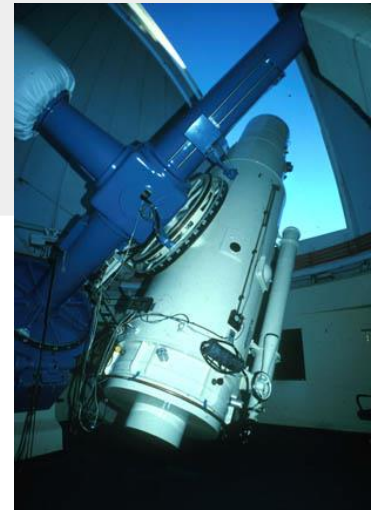
1.3-m debris telescope on Ascension Island (7° 58' S, 14° 24' W)

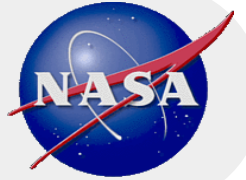
- **Installation complete**
 - Dome, telescope install: April – June, 2016
 - Engineering First Light: June 2, 2016
- **Science First Light**
 - Aug 2015: Fast-readout backup camera
 - Dec 2015: Prime camera
 - Jan 2016: First data collects
- **Objectives for Operations**
 - GEO, LEO statistical surveys
 - Track cataloged objects for characterization
 - Can track objects in LEO/LILO @200km
 - Rapid break-up response
 - SSA coverage



On-Going Optical Measurements

- **MODEST (visible)**
 - No survey observations in 2015
 - Data reduction, Analysis for 2013-2014 obs in progress
- **Magellan (visible)**
 - Rate Track Survey: Search for debris from June 2014 breakup of Titan 3C Transtage SSN03692 (1969-013).
 - Rates estimated via NASA models
 - July, Oct 2015: 2 half-night runs
 - Initial results detected several objects at expected rate – analysis ongoing.
- **UKIRT (near-IR and mid-IR)**
 - Spectral campaigns – March, Apr, Oct 2015
 - WFCam photometry
 - Geo debris tracking: July, Aug 2015
 - GEO Survey: Dec 2015, Jan 2016
 - GEO Breakup Survey: Feb 2016





In Situ Activities

- **Space Debris Sensor (SDS)**
 - Completed Critical Design Review in February 2016
 - Expected Launch Date to the ISS is October 2017
- **DebrisSat**
 - Progress on DebrisSat on be covered by presentations during the joint WG1/WG2 Session.